

## CLAIMS

What is claimed is:

1. A planetary gear carrier assembly for an automatic transmission  
5 of a land vehicle, said carrier assembly comprising:
  - a carrier housing including a first mating section and a second mating section, said first mating section including a central access opening having an inside diameter of a predetermined dimension, said first mating section further including at least one semicircular cutout formed coextensively with an inner surface of said access  
10 opening;
  - a set of planetary gears rotatably mounted in coplanar relation within said carrier housing and intermediate said first and said second mating sections; and
  - a replacement thrust bearing residing at a location within said carrier housing accessible only through said access opening, said replacement thrust bearing having an  
15 outside diameter greater than said inside diameter of said access opening and less than a linear dimension measured between said inside diameter and said cutout permitting said replacement thrust bearing to pass through said opening in alignment with said cutout after assembly of said carrier housing.
2. The planetary gear carrier assembly of Claim 1 wherein said thrust bearing is  
20 a radial roller bearing having at least fifty-two roller elements.
3. The planetary gear carrier assembly of Claim 2 wherein said roller elements measure at least 0.157 inches providing at least a 30% increase in bearing contact surface in comparison to an original equipment thrust bearing having an outside diameter less than said access opening.
- 25 4. The planetary gear carrier assembly of Claim 1 wherein said replacement thrust bearing is piloted by a counterbore formed within an interior surface of said second mating section of said carrier housing.
5. A planetary gear carrier assembly for an automatic transmission  
30 of a land vehicle, said carrier assembly comprising:
  - a planetary carrier housing including a first mating section and a second mating

section, said first mating section including a central access opening having an inside diameter of a predetermined dimension, said first mating section further including a pair of opposed semicircular cutouts formed coextensively with an inner surface of said access opening;

5        a set of planet gears rotatably mounted in coplanar relation within said carrier housing and intermediate said first and said second mating sections; and

            a replacement thrust bearing residing at a location within said carrier housing accessible only through said access opening, said replacement thrust bearing having an outside diameter greater than said inside diameter of said access opening and less than a  
10 linear dimension measured between said semicircular cutouts permitting said replacement thrust bearing to pass through said opening in alignment with said cutouts after assembly of said carrier housing.

6. The planetary gear carrier assembly of Claim 5 wherein said replacement thrust bearing is a radial roller bearing having at least fifty-two roller elements.

15        7. The planetary gear carrier assembly of Claim 6 wherein said roller elements measure at least 0.157 inches providing at least a 30% increase in bearing contact surface in comparison to an original equipment thrust bearing having an outside diameter measuring less than said access opening.

8. The planetary gear carrier assembly of Claim 5 wherein said thrust bearing  
20 is piloted by a counterbore formed within an interior surface of said second mating section of said carrier housing.

9. An improved planet carrier assembly of the type having a carrier housing including a first mating section and a second mating section, said first mating section including an access opening of a predetermined dimension, a set of planet gears rotatably mounted in coplanar relation within said carrier housing and intermediate said first and said second mating sections, and an original equipment thrust bearing for installation within said housing, wherein said bearing is installed through said access opening, the improvements comprising:

30        a modified carrier housing wherein said first mating section includes a pair of diametrically opposed semicircular cutouts formed coextensively with said access opening; and

a replacement thrust bearing having an increased surface contact area and dynamic load rating in comparison to the original equipment thrust bearing, said replacement thrust bearing having an outside diameter greater than said access opening and less than a linear dimension measured between said semicircular cutouts thereby

5 permitting said replacement thrust bearing to pass through said opening in alignment with said cutouts after assembly of said carrier housing.

10. The planetary gear carrier assembly of Claim 9 wherein said replacement thrust bearing is a radial roller bearing having at least fifty-two roller elements.

11. The planetary gear carrier assembly of Claim 10 wherein said roller elements measure at least 0.157 inches providing at least a 30% increase in bearing contact surface in comparison to the original equipment thrust bearing having an outside diameter measuring less than said access opening.

12. The planetary gear carrier assembly of Claim 9 wherein said replacement thrust bearing is piloted by a counterbore formed within an interior surface of said second mating section of said carrier housing.

13. A method of manufacturing a planetary gear carrier assembly having a plurality of planet gears installed therein for use in an automatic transmission, said method comprising the steps of:

providing a first mating section of a planetary carrier housing including an access opening and a second mating section of said carrier housing;

joining said mating sections to assemble said planetary carrier housing;

machining diametrically opposed semicircular cutouts within an inside diameter of said access opening such that a linear dimension measured between said semicircular cutouts is greater than said inside diameter; and

25 inserting a thrust bearing having an outside diameter larger than said inside diameter of said access opening and less than said linear dimension into said housing via said semicircular cutouts.

14. The method of Claim 13 wherein the step of joining further includes the step of:

capturing said planet gears intermediate said first mating section and said second mating section in rotatable engagement therein.

15. The method of Claim 14 wherein the step of capturing is carried out by weldment of said first and second mating sections.

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